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WINGS OF MERCY

for Page 20

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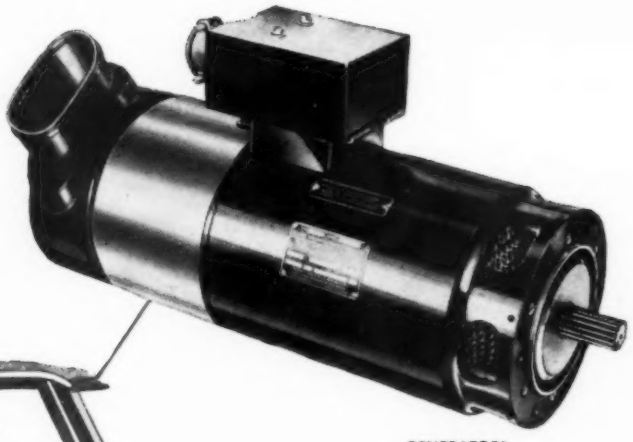
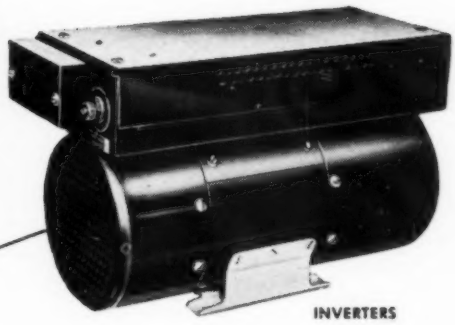


GENERATORS



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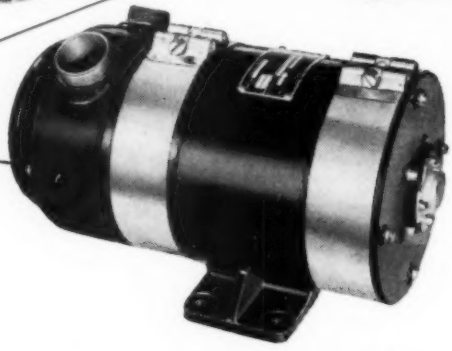

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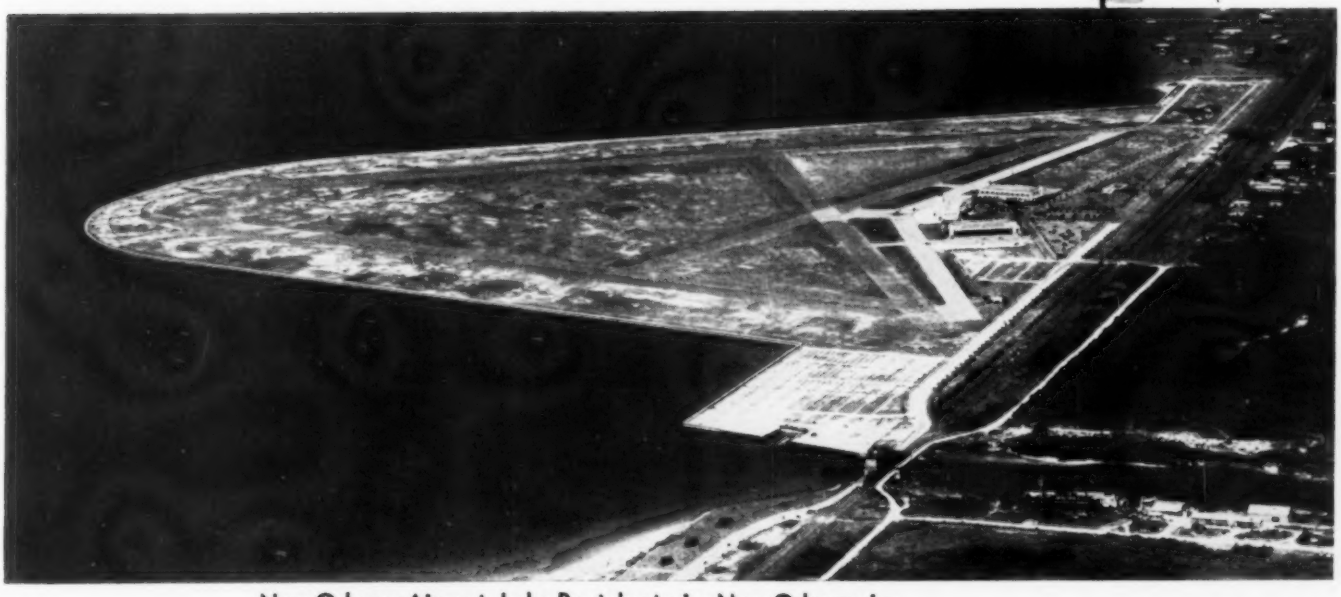

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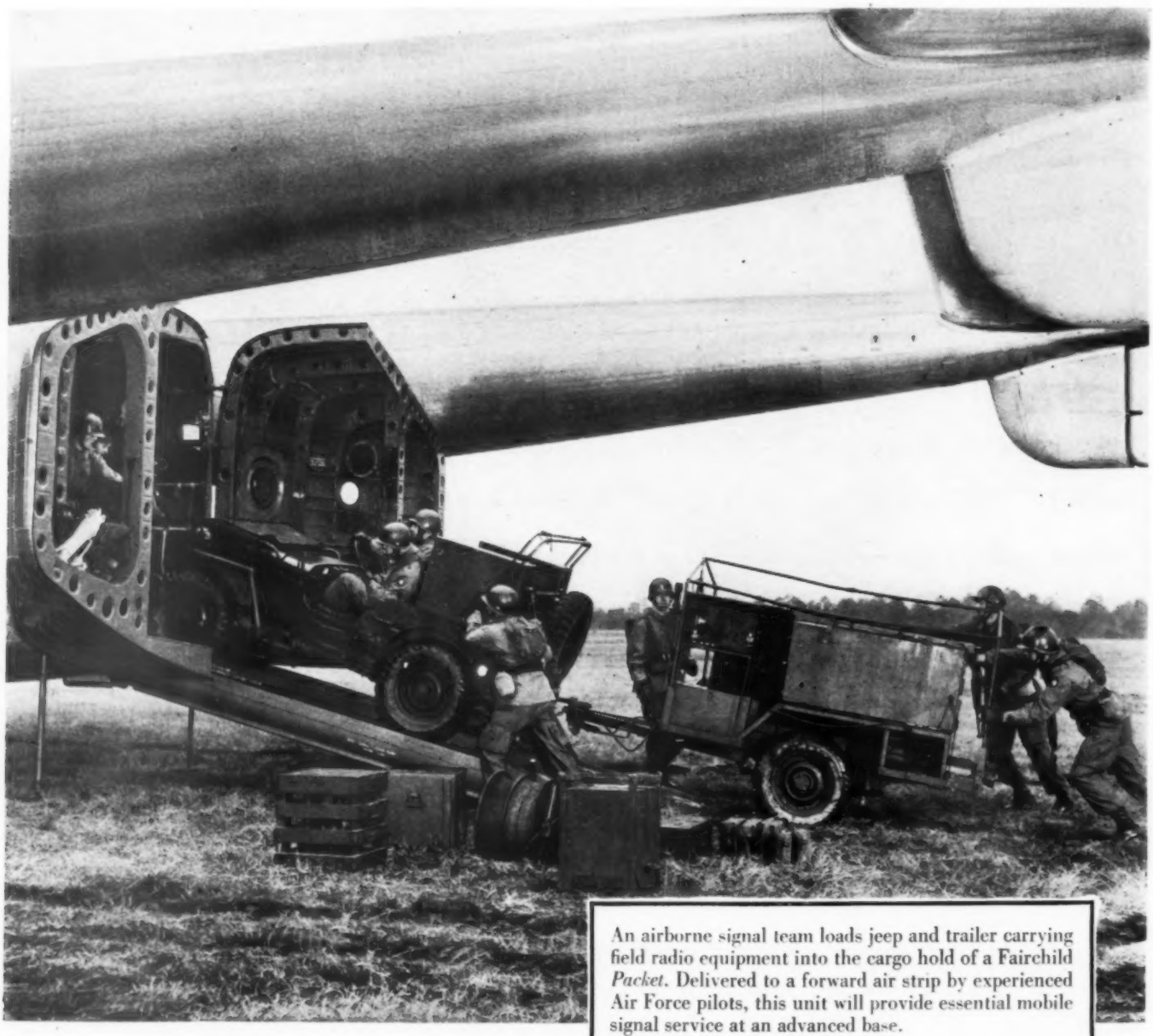

An airborne signal team loads jeep and trailer carrying field radio equipment into the cargo hold of a Fairchild *Packet*. Delivered to a forward air strip by experienced Air Force pilots, this unit will provide essential mobile signal service at an advanced base.

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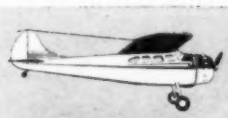

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SUCCESS STORY

That Humble-Esso Helped to Write

Just west of San Antonio, within a few minutes ride of town, Moody Monroe and Jimmy Witt operate one of the finest private airports in South Texas. Operations started in 1945 and the partners weren't long in discovering what it takes to make an airport a success—good facilities and good products.

Today, their field boasts 4000 feet of hard-surfaced runways, a large overhaul hangar, 20 individual hangars and other facilities for transient service and storage. And since 1946, Monroe and Witt have sold and recommended **only** Humble-Esso Aviation Products. Here, as at scores of other fine Texas outlets, the Humble-Esso wings are your assurance of service that matches in quality the products that are **first with flyers in Texas.**

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HUMBLE OIL & REFINING CO.

HUMBLE-ESSO AVIATION PRODUCTS

MARCH, 1949 VOL. XXXI, No. 3

Southern FLIGHT

including MODERN AIRPORTS

COVER: Among many unsung mercy pilots whose airplanes aided snowbound Great Plains families during recent blizzards were Dean Davis, left, and Red Meiners, shown loading milk in one of their Pipers. They supplied citizens at Grant, Nebraska, with milk by air from Ogallala. See pages 8-9.
—(Photo by Lawrence Robinson.)

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AIR Report

Significant Trends and News

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CAB Policy Statement

The Civil Aeronautics Board late in February released an 18-page statement of policy with respect to its economic program for 1949. Whether all segments of the airline industry will agree with the Board's attitude and approach to some of the ills of the industry doesn't matter—it's an admirable and reassuring statement which ushers in what might prove to be a new era of positive and progressive action. In effect the Board has stepped down from its ivory tower and is taking the industry and the public into its confidence. It is the finest piece of public relations ever turned out by the Board in its 11-year history.

Reed Takes on Hiller 'Copters

First Texas-Louisiana helicopter distributorship has been acquired by J. D. Reed, Houston operator and Beechcraft distributor who leads the country in personal aircraft sales. Reed signed up last month with United Helicopters, Inc. United's "Hiller 360," 3-pl. standard model powered by 178-hp. Franklin, is now in production with No. 1 aircraft being delivered recently. Sales price of standard model is $19,995. Hiller 360 has been approved by CAA.

Commercial Jet?

Ryan Aeronautical Company's employe publication has pictured a new lightweight turbojet engine with a description including comment to the effect that it might be "capable of powering a medium-weight executive airplane at 250 mph." The engine is the J-55 designed by Frederic Flader, Inc., one of several firms for which Ryan builds jet engine parts. It weighs 300 lbs., including basic engine, standard tailpipe, starter, fuel pump and engine controls and delivers 770 lbs. of thrust at take-off and 700 lbs. for cruising at 26,000 rpm. Its tailpipe temperature while cruising is 1,170 degrees. Overall diameter is only 15.75 inches, length 79 inches. The little jet is now in production for the U. S. Air Force, apparently being designed for pilotless aircraft. Ryan Aeronautical has a contract for pilotless jet aircraft designed as targets.

USAF Training Up

The U. S. Air Force will train more aviation cadets as officer pilots in 1949 than in any previous peacetime year. New schedule calls for new classes every six weeks, or eight times a year, compared to three times a year previously. The Southwest will remain the training ground with six months of basic at Randolph (San Antonio), Goodfellow (San Angelo), Perrin (Sherman) and Waco, Texas; six months advanced at Williams (Phoenix) and Las Vegas, and six months twin-engine advanced at Barksdale (La.) and Enid (Okla.).

Renewed Activity at Piper

At presstime W. T. Piper, Sr., president of Piper Aircraft Corporation, reported that his company has greatly increased the number of workmen and that his production lines are running again after a winter shutdown. "It has been a long time" Piper commented, "since one of our distributor meetings had as cheerful a gang of men attend it as were here the first of February."

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Just among ourselves

EDITORIALS

DOWN-TO-EARTH SALESMANSHIP

SOME of aviation's best salesmen are never recognized by the industry they support. Maybe it's just as well they remain incognito because as relatively plain and ordinary average guys they get more done. The other day we read a long treatise which explained that what the scheduled airlines needed most of all was salesmanship—good sales efforts that might fill the empty seats. Not long ago we read a Gallup poll report that proved the American public was sold on air preparedness, that the military air arms had done a good job of selling the people on air power. And you can't attend an aviation conference these days without being impressed with the realization that private flying's principal problem is not the equipment—but the salesmanship needed to get more people into the air.

These columns have pointed out from time to time that we'll probably always be a poor, struggling ham-and-egg industry so long as the majority of our citizens—some 80 or 90 per cent of them—never set foot in an airplane. We have harped incessantly on the proposition that the most important job facing aviation today is not the 70-group air force, or Federal aviation policies, or improved safety, or more airports—what we need in order to bring about the air age is aviation education in our public schools.

Dewey Dovel, manager of the Gregg County Airport (Longview, Kilgore and Gladewater, Texas), sent us a copy of a letter of thanks he received from a school teacher who participated in an "air education day" Dovel worked up with the help of Fred Reed, regional CAA aviation education consultant.

It is one of many such letters received as a result of one man's efforts to do something locally for air education. We reprint the letter herewith. It's an editorial in itself and needs no comment from us to prove anything:

"Now that I have a little respite after the ordeal of mid-term examinations I want to tell you that I enjoyed very much your courtesy and hospitality recently as one of the teachers of Gregg County. That Saturday stands out as one of the brightest spots of my teaching experience.

"The talks that day were very helpful, the exhibits informative, the luncheon delicious, the tour through the airport instructive, and the airplane ride thrilling.

"I want to thank you especially for helping me overcome my fear of air travel. Though I was stationed at Lubbock Army Air Base for two years during the war and could have gone up almost any time, I was too fearful to try even one flight. I do appreciate the comfortable, safe ride your pilot provided me as your guest. In fact, I liked it so much that now I am looking forward to a real trip by air—thanks to you!"—

(signed) Miss Enid Aycock.

DON'T DISCOUNT THE HEAVIES

DESPITE the lessons of World War II and earlier indications, a few die-hards are still harping against strategic bombing's effectiveness. It's the same song and dance—the heavy bomber is too big, too slow, too defenseless to do a long-range job until adequate escort fighters are developed to go with it; or, you can't defeat the enemy without invading his homeland with Marines, sailors and foot soldiers. Such yakkity-yak will probably never cease.

But the strategic bombings of key German resources were fatal blows and were frequently accomplished without escorts, while bombing forced Japan's capitulation without a single amphibious landing assault against the Japanese home islands long before annihilation of Japan's armies by capture or casualties. In both cases the power to resist had been destroyed from the air, with long-range bombers scoring heavy, tell-tale blows far beyond the front lines and islands.

Long-range bombers suffered losses, even after they were escorted, and they will suffer losses in any future war. But their effectiveness was and always will be tremendous—against air defenses as well as ground targets. Few heavy bomber offensives, properly operated, were turned back in World War II. The most effective way to stop air offensives is to destroy them in the enemy's homeland before they are launched—the raw materials, production lines, fuel and ammunition supplies and air bases from which they originate. Such destruction determined victory last time and will do the same in any future conflict—through strategic bombing. ★ ★ ★

RALPH DAMON

RALPH S. Damon recently became president of TWA. We're happy about the appointment for several reasons. The TWA system needs a man of Damon's proven capacity, brilliance and ability at its helm. It means his return to the wide-open spaces after too long a sojourn in the East.

We first ran into his genius some fifteen years ago when he was developing the Curtiss-Wright Condor at St. Louis. You old-timers will remember that the Condor was the first sleeper plane in history. To solve the many problems and work out all of the details for which there weren't any precedents, Ralph Damon and his good wife moved down to the factory and actually lived in the mock-up. From this experience he acquired the information necessary to make the sleeper plane comfortable and practical. The incident symbolizes Damon's realistic approach to every problem, his refusal to go on theory.

(Continued on page 18)

These businesses reached new sales "highs"

. . . with company-owned Bonanzas

"We sell real estate all over Florida," says B. L. Mitchell of the Keyes Company, Miami. "We think using our 4-place Bonanza has added several million dollars to sales volume. Recently, two prospects wanted to make a good property investment. We flew them in comfort 250 miles to inspect a desirable site, and they bought. No waste time for them—profit for us."

"I personally supervise scattered construction projects," says W. H. Koenig, Chicago general contractor, "and can't afford to wait on transportation schedules. With my Bonanza, my workday on projects several hundred miles distant is no longer than spent on local jobs. It's important to a family man to make it home for dinner, and now it's always possible."

"Our Bonanza long ago paid for itself in executive time saved alone. Much additional business has been gained through a sales force that 'flies'," says George Lee, president of Red Devil Tools, Irvington, N.J. We keep in *personal* touch with distant factories and markets, now that travel time is cut two-thirds—by Bonanza. Pennies-per-mile operating cost!

Apply Bonanza Transportation to your business

Company ownership of this fast, *quiet* plane turns travel days into travel *hours*—time saved you can put to *profitable* use. Investigate! A note on your company letterhead will bring an informative 60-page brochure on "The Air Fleet of American Business." Write today to Beech Aircraft Corporation, Wichita, Kansas, U.S.A.

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MODEL A35

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WINGS OF MERCY

Volunteer airmen launched a great lightplane air lift when blizzards paralyzed the Great Plains, operating against great obstacles to provide succor to the suffering countryside

Typical of hundreds of lightplane mercy flights during the blizzards was this scene photographed near Ewing, Nebraska, by Lawrence Robinson, Omaha World-Herald chief photographer. It shows Farmer Harry Keller (in circle) receiving a package dropped from a small plane equipped with skis. Medicine, food, fuel, clothing and other necessities were delivered, either by air drops or by lightplanes landing nearby and in many cases persons requiring hospitalization were picked up by the little planes.

By TOM ASHLEY

NOTHING could move. Not even cows and horses. The only things with half a chance of motion were John Fryback's and Fred Wilson's airplanes. But the odds against them were heavy—the bitter cold of the mounting blizzard, the 40-mile wind and the lack of visibility from blowing snow on the ground, where drifts which buried trains and snowplows and bulldozers and farm buildings were paralyzing the countryside.

John Fryback and Fred Wilson did move, though. Out in the blizzard were starving and freezing people and livestock, stopped dead in their tracks by the creeping paralysis of the unrelenting snow storm. Luckily the East-West strip on Eastside Airport in the community of Wheatland, Wyoming, was still open. Despite the odds imposed by cold and wind and poor visibility, an Aeronca Champion got into the air and within two hours had located four herds of cattle for their owners. Then back to the little East-West strip for fuel.

It was noon when the gas was loaded. A hot lunch waited; but human suffering came first—a passenger bus, stalled near the airport by the raging blizzard, had among its passengers a woman with a baby she was rushing to a hospital for removal of a peanut from the child's lung. What could they do? John solved that quickly by flying the mother and infant to Denver's Children's Hospital. Coming back from Denver he brought groceries and films and newspapers. Then he contacted two ranches for their food needs before calling it quits for the day.

A Busy Day

An extremely bad ground blizzard was howling over Wheatland next morning but John Fryback's Aeronca and Stinson got into the air by 8:30 a. m. A powerline break had left a nearby community without water until the Aeronca spotted the break and directed repairmen to it. The town

pump was restored. A herd of cattle containing 300 cows and calves was located drifted into a fence corner where starvation was taking its toll. "It looked as if 75 per cent of them would be lost until we flew two hired men in there and their rescue was so effective that only 14 cows died," John commented. After lunch while returning from an emergency flight to Cheyenne, one of the Wheatland planes found the highway from Cheyenne dangerous from blowing snow and its pilot threw a warning message to a highway patrolman, who in turn halted about 100 autos, turning them back. They would never have made Cheyenne that night. That afternoon Fryback sent three plane loads of passengers out with transit pilots from other airports—when an airplane with space would stop for gas, Fryback would load it with passengers trying to get through. After making up grocery packs for snow-bound people who had signalled for food, Fryback called quits for the second day of blizzard operations.

The third morning of blizzard dawned colder than ever and it took an hour longer than usual to preheat the Stinson and Aeronca engines before starting them. By 11 o'clock, however, they had dropped groceries to three families and had picked up a rancher, snowbound away from home for six days, and rushed him to his ranch only to find 80 calves smothered beneath a drift in a fence corner. While the Aeronca searched the countryside and dropped signal instructions to marooned families and hired men, the Stinson flew a load of stranded travelers to Denver and returned with 150 lbs. of yeast, other supplies and daily papers. Just before dark three more herds of cattle were checked, groceries were dropped to signaling families and the searching Aeronca, finding the letters "p-e-n-i-c-i-l-l-i-n" spelled out in the snow, had dropped a supply of precious medicine to a suffering ranch family.

Baby Saved in Ridge Landing

Human suffering on the fourth day was mounting and one of the little planes came upon an odd and tragic scene among the drifts miles from civilization. Fryback's cryptic log pictured the incident like this: "Checked man breaking trail for horse ridden by woman holding bundle. Throttled back and asked if they needed help. They did. Baby was ill so landed on small ridge top and flew Mrs. Hacker and baby to Torrington hospital." In parenthesis, Fryback added: "It was miles to a road and the new cold wave was already moving in." That done, there

This small home near Goose Lake, Nebraska, was almost covered by drifting snow when Mercy Pilot Carl Hubel landed nearby with emergency food parcels. Inside he found Mr. and Mrs. George Cook, 89 years old and ailing, from whom nothing had been heard for three weeks. Lawrence Robinson accompanied Pilot Hubel on many of his blizzard flights. The Hubel plane and two other lightplanes supplied 65 families with essentials throughout two blizzards in December-January. Temperatures at times dropped to 20 degrees or more below zero in many areas of Wyoming and Nebraska and the lightplane air lift operated in winds as high as 40 mph. or more to alleviate suffering.

was just time for one more series of drops—groceries to snowbound families in drifts where they could not be reached even by horsemen.

On the fifth day the cold wave hit bottom and the mercury dropped to 24 degrees below zero. It took very near three hours of hard work to start the engines. "All people who signaled were helped," says the log. Among those who signaled were a 75-year old couple at Burns, Wyoming, marooned in their home without cooking fuel or food but who still had electricity. Meat, groceries and an electric roaster were flown in for them — "roaster, coats, scarves, gloves and clothing were loaned as a courtesy of airport management," the log says.

Fourteen days running the Stinson and Aeronca labored over the blizzard area performing errands of mercy. "All work was done by John Fryback, very ably assisted by Fred Wilson, Flying Farmer from Slater Flats," read the notation closing out the log.

While January blizzards punished the Great Plains, hundreds of John Frybacks and Fred Wilsons operated scattered lightplane air lifts virtually unnoticed by the outside world. The Air Force's "Operation Hay Lift" and the Army's bulldozers and weasels and what-not overcame tremendous odds to render assistance in the blizzard area and in Berlin the vaunted Allied air lift piled up record tonnages. But for individual initiative and accomplishments despite worst possible conditions, nothing could parallel the unsung mercy flights launched spontaneously from hundreds of little airports by little planes. Nothing could

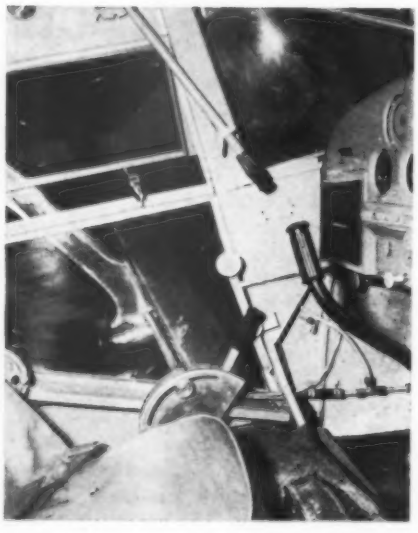
(Continued on page 22)

Liquid from wing tanks feeds by gravity into new Luscombe's small strut-mounted units, with air-driven blades driving rotary wire brush in each unit at 3,000 rpm. to atomize liquid in conical spray. Wing flap forces airstream to carry spray downward. Airplane sells for $3,595, completely equipped. Its rotary units, with mountings, weigh 22 lbs., wing tanks 36 lbs., cockpit quadrant controls 6 lbs. and complete spray equipment, with plumbing and fairings, totals 70 lbs. in weight. As a sprayer it has a 600-lb. useful load in addition to spray equipment.

—(SOUTHERN FLIGHT Photo by Tom W. Collins.)

Luscombe's Silvaire Sprayer

Assembly-line production of specialized work-planes is sought in development of 90-hp. sprayer with rotary units, wing tanks for chemicals and a new Luscombe wing flap



Cockpit interior includes factory-calibrated spray controls on quadrant mounted at left of seat, throttle (white knob) mounted on left side of cockpit near quadrant and wing flap control lever, which can be set in 15-degree and 30-degree positions.

—(SOUTHERN FLIGHT Photo by Tom W. Collins.)

A CROP-SPRAYING airplane which rolls off the production lines complete with wing tanks and spray units installed and which features the use of trailing-edge wing flaps to force the spray downward has been demonstrated by Luscombe Airplane Corporation of Dallas in advance of commercial sales. Engineers and dealers who have demonstrated the 1949 Silvaire Sprayer describe it as a promising specialized design which should influence the lightplane industry in development of other specialized airplanes in the future.

The airplane is Luscombe's all-metal 90-hp. Silvaire Observer Special, with tandem seating, modified by the incorporation of high-lift flaps, installation of two 30-gal. wing tanks to carry liquids for spraying, and installation as standard equipment of a Safe Flight stall warning indicator, McCauley climbing metal propeller, chest harness and oversize tires for operation from soft and rough fields. CAA has approved the Sprayer.

Wire Brush Rotors

Spray equipment consists of two rotary wire brush units designed by Independent Crop Dusters of Campbell, California. The units used by Luscombe are said to be new and improved models based on Roto-Spray units used for over 15 years on Stearmans.

"These units provide a spray pattern with a swath width of 45 ft. while flying five ft. off the ground and 60 ft. while flying 10 ft. off the ground," a Luscombe spokesman said. "By various combinations of brushes and spacers, particle size can be controlled positively from aerosol to rain (10 to 1,500 microns). The spray pattern has been found uniform throughout the width of the swath."

Unique tests were conducted in studying the swath uniformity and size of particles in the spray. Paper sheets placed on the ground recorded both swath and droplets. One of the newest ideas in this kind of work is the use of chemically-treated paper.

When a droplet falls onto it, a chemical reaction takes place to permanently record each droplet for laboratory studies.

The spray system on the new Luscombe is said to feature a positive, non-clogging shut-off valve. This is controlled by a quadrant inside the cockpit, on which is a graduated scale. By following this factory-calibrated scale, the pilot can use an accurate and positive choice of dosages ranging from 2 qts. to 10 gals. per acre. No dripping after shut-off is claimed.

"Due to unique flap action on the Silvaire Sprayer, the spray is directed against the ground to minimize drift and to provide a rebound effect, previously obtainable only with helicopters," Luscombe points out. "This thorough downwash and rebound coats the underside as well as the tops of plants and foliage."

Luscombe performance claims are as follows: "At its recommended gross spraying weight of 1,500 lbs., permitting the loading of 50 gals. of spray liquid, the Silvaire Sprayer will take off in 500 ft. and land in 400 ft. under no wind conditions. Initial rate of climb at sea level is 700 fpm. Cruising speed at full load is 105 mph. and spraying speed range with flaps down is 50 to 90 mph. Stalling speed is only 40 mph. with power on and 45 mph. without power. Extreme maneuverability of the Sprayer has been demonstrated with 24-sec. 'on the row' turns at full load."

The company believes the use of spray tanks inside the wings gives it many advantages over other aircraft employing fuselage tanks. Gravity feed supplies a constant head at all times. The natural motion of the wings in flight, plus the incorporation baffles inside the spray tanks, provides automatic agitation for the spray liquid. Each of the two wing tanks is equipped with two large filler openings with quick seal caps, located so as to permit easy tank cleaning in a matter of minutes. Tank construction follows the design of Luscombe's metal gas tanks. Gasoline capacity of the new Sprayer is 25 gals. in two wing tanks inboard of the spray tanks.

Ease of maintenance is sought in the elimination from the Luscombe spray system of all screens and strainers. There are no small restrictions, no nozzles to clog and no pump shaft seal to leak. The entire unit is said to be self-cleaning due to centrifugal action. Connections in the spray solution lines are held to a minimum and there is no plumbing to leak because of high pressure. All moving parts run on permanently lubricated ball-bearings.

All of the new Luscombe's spray equipment, with the exception of its spray tanks inside the wings, are easily removable so that the airplane can be used as a general utility ship during the off-season. ★ ★ ★

Visibility from cockpit is exceptional. Note plexiglass door panels.

Close-up shows how unit is mounted on strut. Spray equipment is removable.

Gus Erickson, Luscombe's chief engineer, demonstrates chest harness installed in Silvaire Sprayer at factory.

Spray tanks, outboard of fuel tanks, have large openings for cleaning, as Engineer Merle Mueller shows.

AIRCRAFT AT WORK

THE only accurate figures on non-military and non-carrier aircraft at work are those based on applications to the Civil Aeronautics Administration for waivers with which operators may perform special activities with aircraft. The latest available figures from this source show that, as of January, 1949, almost 1,000 operators and owners were engaged in 75 different special industrial and agricultural activities.

The largest number of operators engaged in a single type of activity covered by waivers: 866 operators doing "cattle checking." They were using 926 planes. This compares with 466 operators using 477 planes for cattle checking as of January, 1948.

The largest number of airplanes engaged in a single type of activity covered by waivers: 1,883 planes doing dusting. They were used by 768 operators. This compares with 463 operators using 1,303 planes in dusting as of January, 1948.

Steadily increasing employment of aircraft in industrial and agricultural activities is shown in the following figures from CAA:

Activity	January, 1948 No. Oprs.	January, 1948 No. Acft.	January, 1949 No. Oprs.	January, 1949 No. Acft.
1. Checking Cattle	466	477	866	926
2. Checking Crops	271	329	827	918
3. Hauling Feed, Equipment	153	264	814	868
4. Dusting	463	1,303	768	1,883

(Continued on page 19)

Some of Ryan's improvements visible here are landing gear doors, relocated exhaust stacks which were moved rearward to cowling gill at firewall and headrest behind rear seat. Manifold pressure gauge, dual exhaust mufflers and new RCA receiver with 6-channel VHF transmitter are standard equipment. New model Continental engine has 205-hp. rating. —(Ryan Photo.)

Ryan's Improved Navion

More performance and comfort have made a good airplane even better. Refinements include more powerful engine, less drag, use of mufflers and soundproofing

SIGNIFICANT improvements have been achieved by Ryan Aeronautical Company in its 1949 Navion, first deliveries of which were made late in February to distributors. The company lists twenty-nine changes incorporated to give the Navion higher performance and greater cabin comfort.

Increased performance of the new model was obtained from refinements in streamlining and from a new rating of 205 hp. for its improved 6-cylinder Continental engine. Delivery of the new model was awaited to measure its performance, but Ryan says its cruising speed, formerly advertised as being 150 mph., is now "up to 155 mph." The actual increase is expected to be about 10 mph. The use of "up to" and "down to" in Ryan's performance claims is a new twist in personal aircraft advertising. It avoids specifying exact figures, probably on the theory that owners may or may not exactly duplicate factory test flights used as the basis for specifying performance.

Improved streamlining in the new model features the use of landing gear doors and fairings as standard equipment. Another notable change moved exhaust stacks rearward from the nose, where they formerly projected downward from the cowling to create considerable drag. They are now located in a cowling gill below the fuselage near the wing.

Greater cabin comfort was achieved by several improvements, featuring better soundproofing. Dual Ryan exhaust mufflers are standard equipment and reduces noise not only by muffling but by carrying exhaust gas and noise beneath the fuselage and away from the cabin. In addition to the soundproofing previously provided at the firewall and along the forward section of the cabin, new and thicker acoustical and thermal insulation has been provided for the side panels of the cabin and for the ceiling of the sliding canopy. Thickness of the material at the firewall has been nearly doubled. A heavier gauge windshield materially reduces noise and vibration.

1949 Navion Performance

Cruising speed, up to	155 mph.
Take-off distance, down to	560 ft.
Take-off distance over 50-ft. obstacle, down to	875 ft.
Landing roll, down to	450 ft.
Landing distance over 50-ft. obstacle, down to	875 ft.
Climb first minute, up to	900 fpm.

(Note: Take-off, landing and climb are with zero wind, sea level and full gross of 2,750 lbs.)

Comfort for rear seat occupants has been improved in several ways. Arm rests, which formerly extended three inches out from the cabin sides, have been replaced by recessed ones which give an additional six inches of room in the seat. A new limousine-type folding center arm rest, which can be pulled out from the back rest, divides the rear seat. Also new is the folding, divided rear seat back rest which makes possible more convenient baggage storage and provides cabin access to the luggage compartment in flight.

The new rear seat also includes thicker foam rubber padding, particularly in the middle of the occupant's

back, a higher back and a new headrest roll, which is incorporated in the canopy shelf. New locations have also been provided for the four ash trays and all-wool upholstery has been reapportioned to provide synthetic leather at wear points.

A new exterior air scoop on the right side of the engine cowl has been added to ram fresh air into the cabin ventilation system. Outlets beneath the rear seat empty cabin air into the wing fillet. The new heater-muffler provides adequate cabin heat from the engine exhaust even in the most adverse weather, and eliminates the additional installation and operating costs of the gasoline-burning heat system used by earlier models.

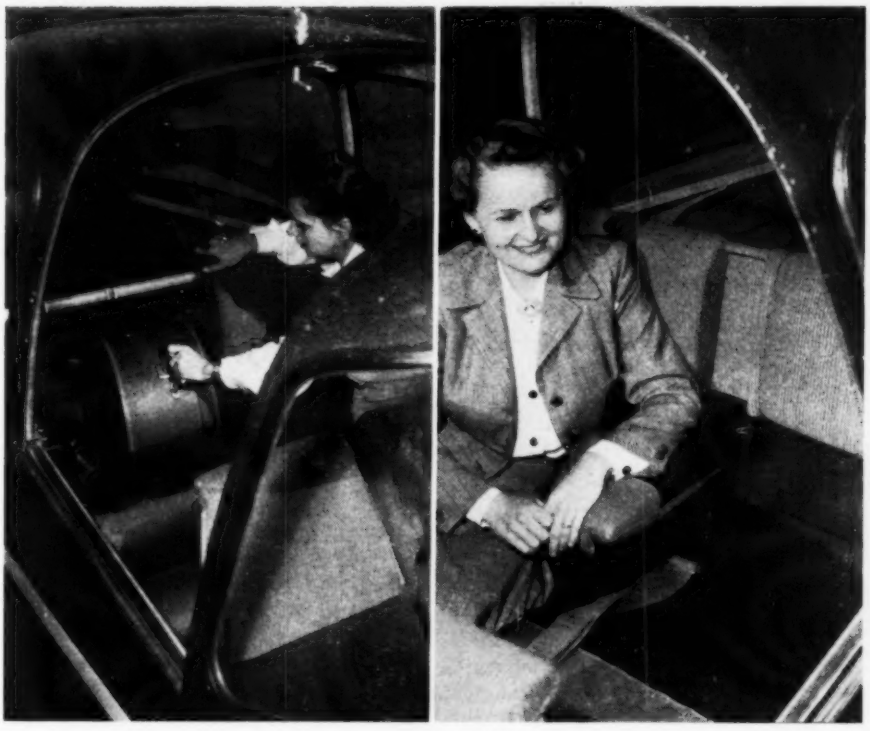
In the new Navion's dual fuel system, with two independent pumps, one engine-driven and the other having an electric drive, the main pump is a vane type instead of diaphragm type. Either of the pumps can maintain fuel pressure, or both can be operated in combination.

A new location is provided for the optional 20-gal. auxiliary fuel tank, which can be installed beneath the rear seat as extra equipment.

Ryan says the Continental engine now being installed in the new model has a 205-hp. rating for take-off and incorporates important changes. These include the use of the silver alloy thrust bearing and new steel cam shaft.

A manifold pressure gauge has been added as standard equipment and Ryan is supplying owners engine cruise computers to assist in obtaining optimum performance.

Added as standard equipment also is a new RCA receiver and 6-channel VHF transmitter. Minimum-drag whip antenna on the fuselage behind the canopy and a bell antenna beneath the fuselage are used, together with a short wire antenna from fin to fuselage.



Interior refinements illustrated by these attractive young ladies include divided rear seat back for access to baggage in flight and folding arm rest. Head rest pad is mounted on canopy shelf. Cabin has new ventilation system and is said to be much quieter than old model. —(Ryan Photos.)

Panel changes provide more standard instruments including rate of climb indicator, dampened fuel gauge and outside air temperature, in addition to the manifold pressure gauge. The panel includes several new control knobs designed for easier identification. The mixture control knob is diamond shaped. The new flap control is in the shape of an air foil section and incorporates a setting for partial flap control in any position. A rheostat dimmer for night operation permits dimming gear position and panel lights. A key-type ignition switch has been added.

A number of other refinements include improved roller bearings for the

(Continued on page 18)

Navions are at work all over the country but this scene on the Elmer C. Von Glahn ranch near Corcoran, California, shows six of them in the field at harvest time (one is at far left). Recently more than 200 people worked with 27 harvesting machines and the airplanes to harvest over 30,000 tons of grain at a rate of about 700 tons (600 acres) per day. The 48,000-acre ranch uses No. 1 Navion for constant patrol against signs of fire at harvest time while No. 2 shuttles back and forth among a dozen harvest camps. No. 3 is assigned to rush mechanics and spare parts to ailing harvesters while No. 4 was used by a trucking firm to direct hauling operations. Two neighboring ranchers brought in Nos. 5 and 6 to watch the big operation. —(Ryan Photo.)

Flying the New Cessna 170

Remarkable stability was achieved by a tapered metal wing and dorsal fin on Cessna's medium size 4-place model. Some speed was picked up, too

By BOB WEMPLE

FLYING the new Cessna 170 proves what can be accomplished to improve an airplane's flight characteristics without extensively changing its basic design. The addition of new wing and a dorsal fin, plus added aileron and flap area, has made the new 170 a good, solid, stable flying airplane.

Good two-needle-width turns can be accomplished both right or left with either rudder or stick alone. After the rate of turn and the bank are established the 170 will hold the turn and bank, hands off, almost indefinitely without gaining or losing any appreciable amount of altitude at cruising throttle setting. We let it ride for 720 degrees with less than fifty-foot change in altitude.

From take-off in gusty air, with three people and full tans of gas, we climbed to 2,300 feet in 3 minutes; to 6,600 feet in 10 minutes; and to 9,000 feet in 15 minutes 10 seconds. This was a straight-out climb with full throttle (2,250 rpm.) and IAS of 75 mph. We tried 80 mph. indicated air speed from 9,000 to 10,000 feet but found that the added speed did not give us as effective climb as the 75 mph.

At 10,000 feet we trimmed for cruising at 2,450 rpm. and obtained an indicated air speed of 109 mph. with the outside temperature at 42 degrees. This gave us a corrected air speed of 119 mph.

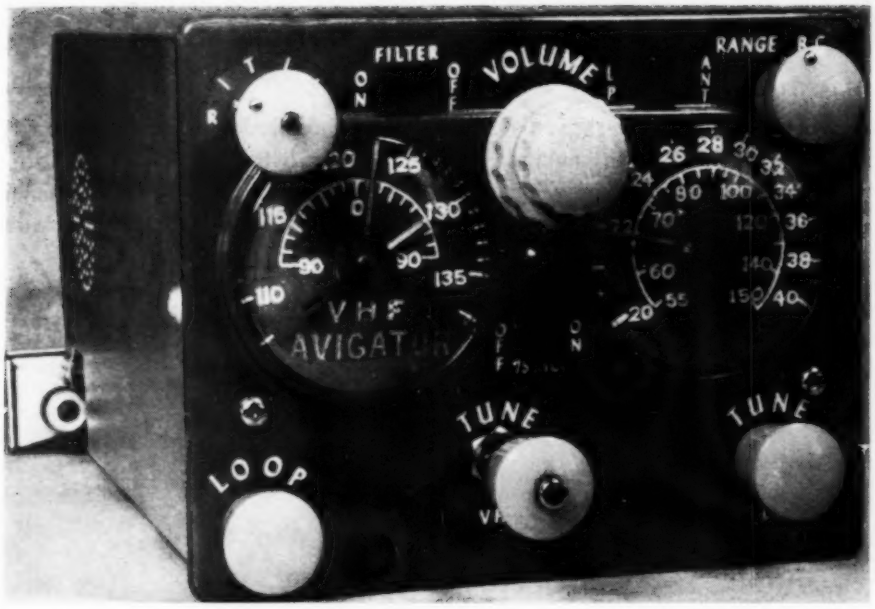
We did a series of straight-away stalls at 10,000 feet and found it to stall at 38 mph. indicated with power on (no flaps) and 34 mph. indicated with power on and full flaps. Without power and flaps the stall occurred at 42 mph. indicated. With power off and full flaps we reached the stall at 38 indicated. Although there was no tendency of the airplane to fall off on either wing there appeared to be ample aileron and rudder control to hold the ship level if it should fall off on a wing. The 170 has nice control at slow speeds if you should need it.

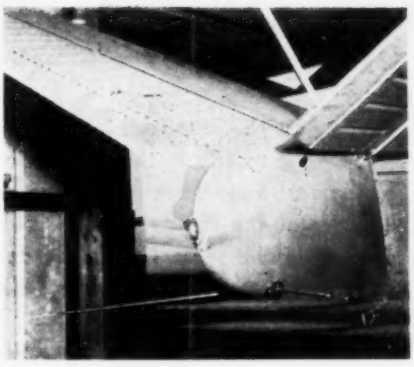
Our cruise speed test was hardly fair to the airplane or the reader but here's what we found. Our measured course ran from West to East for 32 miles. We had a wind of 42 knots from 210 degrees. The air was quite rough and had our IAS jumping from 124 to 128. With the throttle set at 2,450 rpm. we covered the 32 miles in 13 minutes 23 seconds. Our quartering tail wind boosted our ground speed to 143 mph. Our guess is that the little 170 should cruise in smooth air at 3,000 feet right close to 130.

Lee Renshaw, the factory pilot who rode with us on the flight, demonstrated two remarkable characteristics of the 170. He trimmed the ship for a normal let-down at 70 with hands off.

(Continued on page 18)

Here's the airplane the author flew from J. O. Womack's Mustang Airport in Dallas. Its tapered all-metal wing has the same area and span as the old wing but more effective flaps and ailerons. Note single strut and new dorsal fin. It holds altitude at 35 to 40 mph. indicated with full flaps and full power, which is mighty S-L-O-W.
—(SOUTHERN FLIGHT Photo by Tom W. Collins.)





This small V-type horizontally-polarized antenna mounted on a Bonanza provides broadcast and range reception. At left is front view of VHF Avigator. Lower left is loop control knob, at center is VHF receiver tuning knob and at right broadcast and range tuning knob. Dial at left contains VHF receiver scale and loop azimuth, while broadcast and range dial are at right. Tandem volume controls, with VHF at center and outer knob for range broadcast, permits mixing of two in any desired volume. At top from left to right are 6-channel VHF transmitter selector knob, filter switch, loop antenna switch and broadcast-range switch.

ALL IN ONE PACKAGE

LATEST development in the revolutionary progress being accomplished in aircraft communication and navigation radio for lightplanes is a compact little 13-lb. set which combines in a single package a tunable VHF receiver, 6-channel VHF transmitter and reception on standard broadcast, range and 75 mc marker. Directional loop operation with remote azimuth control is also provided on broadcast and range bands.

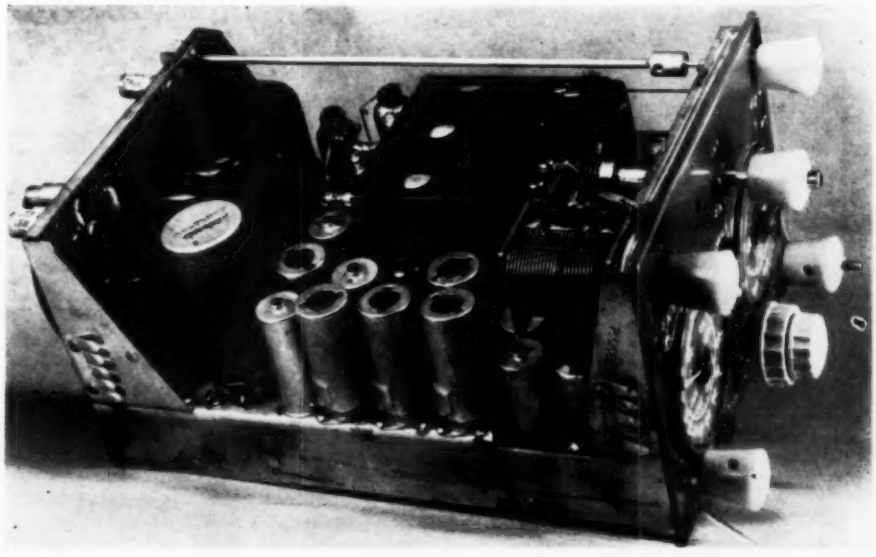
It is called "VHF Avigator" by its designer, Don Mitchell, who has also incorporated in it provision for the addition later this year of omnirange navigation with an automatic mechanical stroboscopic indicator. Mitchell retired last year from the Galvin Manufacturing Company of Chicago, manufacturers of Motorola radios, and acquired all of the firm's Motorola aircraft radio developments, which he had guided as their chief engineer. He has since established Mitchell Industries at a converted army camp near Mineral Wells, Texas, where he and his employes reside and operate aircraft radio research laboratories and production facilities, which continue to supply radio sets designed for Beech Aircraft Corporation as standard equipment in the Bonanza as well as smaller sets widely marketed under the name, "Airboy."

The new VHF Avigator with tunable receiver is not standard equipment in Bonanzas but was designed to fit the Bonanza's radio mounting, being of identical dimensions, so that Bonanza owners might replace their standard sets with the new one. Bonanza dealers have been advised of the availability of the new set at a retail price of $450 with a $50 trade-in allowance on the old model.

Novel VHF Tuning

Outstanding feature of the new set's VHF receiver is its provision for dual tuning. It is explained by Mitchell

(Continued on page 22)



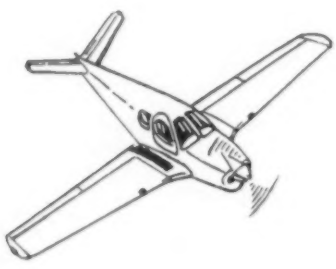
Top view of Avigator chassis, measuring only 10 by 6 by 5 inches. Variable condenser, used for tuning the range and broadcast receiver, is at upper left. Adjacent to it is VHF coaxial tuner, using iron core adjustable coaxial inductors and having three slugs comprising RF, antenna and oscillator cores. This, together with a 10.7 Mc intermediate frequency, makes a 7-tube VHF receiver. Output tubes are 6AQ5's, delivering 3 watts of radio frequency VHF power and 4 watts of audio frequency power for loudspeaker and 500 milliwatts of power for headphones. Power supply is 12-volt.

With dependable radio

GREAT strides are being made in the perfection of better and more useful radio equipment for the private aircraft owner. At the same time more and more airways and airport radio aids are being commissioned.

Is your airplane equipped to navigate off-airways through utilization of the large number of omni-range stations now operating? Many owners are preparing now to be equipped for omni-range radio navigation. And we're proud to proclaim that large numbers of these owners are visiting the Certified Beechcraft Service Stations listed on these pages for accurate information on omni-range equipment and for installation by our skilled, dependable technicians.

Beechcraft owners everywhere know from experience that our



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Love Field — **DALLAS, TEXAS**

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IMPROVED NAVION

(Continued from page 13)

sliding canopy track and a dynamically-balanced wheel and tire for the nose gear assembly as well as for the main gear wheels. A new type hydraulic pump replaces that previously used, giving quiet, smooth operation with no vibration or pulsation noticed in the cabin.

The new Navion is priced at $10,965 which is $980 above the price of the 1948 model. ★ ★ ★

FLYING THE CESSNA 170

(Continued from page 14)

Then, without touching anything else, he pulled on full flaps. The air speed dropped off to about 65 and the nose dropped well below the horizon and the air speed climbed back up to 70 and stayed there. He then dumped the flaps. The air speed went up to 75, the nose came up and the air speed again settled down to the normal 70. That's excellent built-in stability. The next thing he did, that sort of made our eyes bug out, was to hold altitude at 35 to 40 indicated air speed with full flaps and throttle. That's mighty S-L-O-W flying.

Renshaw gave us the low-down on the improved Continental 145. The nose section has been re-machined for better oil seal; new gaskets have been used between the crankcase and accessory case; wrist pin plugs are pressed-fit to eliminate rotation and wear. A new drop-forged steel cam shaft eliminates earlier cast-iron camshaft lobe failures and the center valve spring has been removed to reduce cam loads.

Aside from an increase in fuel capacity to 42 gallons, the new 170 is equipped with a gravity feed fuel system which eliminates the fuel pump. We like the gravity feed. It's hard to beat in feeding "coal" to the burner.

We were pleased to note that the new 170 has a simple catch-lock on the mixture control thus eliminating the possibility of inadvertently pulling the mixture control instead of carburetor heat. ★ ★ ★

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"Course & Mileage"

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Attached Hereto Is Money Order ☐ Check ☐ Cash ☐

In the sum of $.....for..... Quantity

"COURSE AND MILE-GAGE" at $3.45 each.

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Address.....

City.....State.....

Airmen's Calendar

Mar. 17—U. S. Flight Instructors Association convention, Wichita, Kan., H. C. Taylor, Vice President, Box 94, Englewood, Colorado.

Mar. 18—National Aircraft Propulsion Meeting, IAS, Hotel Carter, Cleveland, Ohio.

Mar. 22-24—ATA Airline Engineering and Maintenance Conference, Continental Hotel, Kansas City.

April 1 — Pratt & Whitney Pilots Meeting, Southwest Airmotive hangar, Love Field, Dallas.

April 21-22—National Agricultural Aviation Conference, Kansas City, Mo.

April 22-24—Second Annual Oklahoma City Air Show, O. C. Chamber of Commerce, Sponsor.

April 24-27—American Association of Airport Executives Convention, Biltmore Hotel, Oklahoma City, Leigh Fisher, Convention Chairman, 7337 Churchill Ave., Detroit 6, Mich.

April 28-29—Six IAS Personal Aircraft Meeting, Allis Hotel, Wichita, Kansas.

April 30-May 1 — Fourth Annual Southeastern Air Show, Craig Field, Jacksonville, Fla.

April 29—Florida Flying Alligator Club Spring Party, Jacksonville, Fla.

May 2-4 — Second Annual Airport Operators Council Meeting, Denver.

May 5-6 — Second Annual Purdue University Air Transportation Conference, Lafayete, Indiana.

May 6-7 — National Intercollegiate Flying Meet, Eagle Mountain Marine Air Base, Fort Worth, Texas.

JUST AMONG OURSELVES

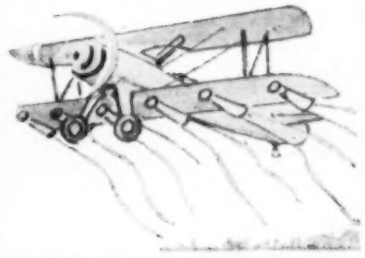
(Continued from page 6)

He left Curtiss-Wright and went with American Airlines in 1936, rising to the presidency in 1945 after a patriotic wartime assignment as president of Republic Aviation Corporation. He resigned as president of American two months ago when that company offered to sell the American Overseas Airlines subsidiary to Pan American Airways.

We predict great accomplishments for TWA under Damon's capable leadership. We're genuinely happy he's come back to the provinces.

★ ★ ★

"100% Kill . . . No Plugging or Trails"



High praise for Burnum Venturi Spray Systems comes from E. P. Stubblefield, Vice President, Rainbow Dusters, Inc., Los Animas, Colorado, as follows: "We have found our Burnum Venturi Spray unit more than met our expectations. We had 100% kill using DDT and Clorodane. With Clorodane we have had good grasshopper control. 2,4-D on wheat and corn is also sure-fire for weed spray with this unit. Maintenance is minimum with no plugging or trails. We sincerely recommend the Burnum Venturi Spray System."

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You, too, can do the job better with our units, available in handy kit form, fully-approved by CAA. We also stock Stearmans modified into combination duster-sprayers. Send for particulars today.

10 *Exclusive Features*

1. Cockpit control in flight for start-stop and metering up to 50 gals./min.
2. Venturi action eliminates pumps, giving automatic force-feed.
3. Perfect droplets at all times, eliminating fogging.
4. Patented dispensing valves eliminate nozzles and are self-cleaning, non-clogging.
5. 102-gal. fuselage tank slides in and out for passenger or other use.
6. All parts installed and operated without structural changes.
7. Light weight. System weighs less than seat, panel, etc., which are removed.
8. Shipped in complete kits with all parts, fittings, instructions.
9. Fully approved by CAA and in use in many states and Mexico.
10. Easily installed by two A. & E. mechanics in only 2 days.

BURNUM AVIATION CO.

Manufacturing, Sales, Installations of Venturi Liquid Spraying Systems

Lucas Field Arlington, Texas

Tels. 1535W1 and 253W

AIRCRAFT AT WORK

(Continued from page 11)

Activity	January, 1948 No. Oprs.	January, 1948 No. Acft.	January, 1949 No. Oprs.	January, 1949 No. Acft.
5. Spraying	283	720	768	1,327
6. Weed Control	20	20	545	863
7. Patrolling Fences	444	455	529	597
8. Hunting Lost Persons	280	412	518	711
9. Coyote Hunting	328	518	464	772
10. Food Dropping (Snow)	168	191	391	554
11. Oil Company Business Transportation	15	44	308	448
12. Spreading Fertilizer	29	51	265	768
13. Sign Towing	99	128	247	338
14. Crop Defoliation	120	323	242	675
15. Aerial Photography	174	254	225	313
16. Checking Fallow Land	136	206	204	292
17. Checking Windmills, Water	200	200	200	200
18. Ambulance	145	169	174	246
19. Power Line Patrol	83	152	162	395
20. Pipe Line Patrol	28	50	151	296
21. Air Police	104	164	147	204
22. Mosquito Control	55	165	141	255
23. Spraying Towns (Insect)	.....	.....	123	186
24. Forestry Patrol	88	141	116	206
25. Oil Well Service	115	223	114	193
26. Mail and Newspaper Delivery	81	146	111	216
27. Glider Towing	78	113	102	124
28. Medical Supplies Transportation	.....	.....	95	139
29. Soil Erosion	42	101	89	139
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(NOTE: Some aircraft were used for more than one activity and some operators engaged in more than one activity.)

No. 1 in a Series . . . (Advt.)

Radio Reviews

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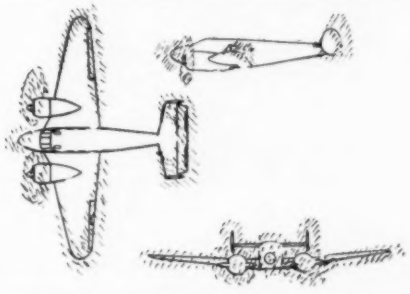
PRECIPITATION STATIC is the term applied to radio interference caused by electrical discharge from antennas and other parts of a plane. This discharge is Nature's way of throwing off electrostatic charges accumulated in flight. Discharging, called "corona" or "St. Elmo's Fire," takes place around the areas indicated by shading in these sketches:



ANYTHING WITH SMALL RADII becomes a critical discharge point, such as extreme ends of masts, antennas, whip antennas, pitot tubes, ground wires. Pointed ends and sharp edges discharge the stuff in showers.

REMEDY? We can't eliminate precipitation static. Nobody else can. But we can reduce it for you. The only satisfactory solution at this time is the use of VHF radio under precipitation static conditions. However, antenna re-work with polyethylene antenna wire and proper masts and insulators will aid you.

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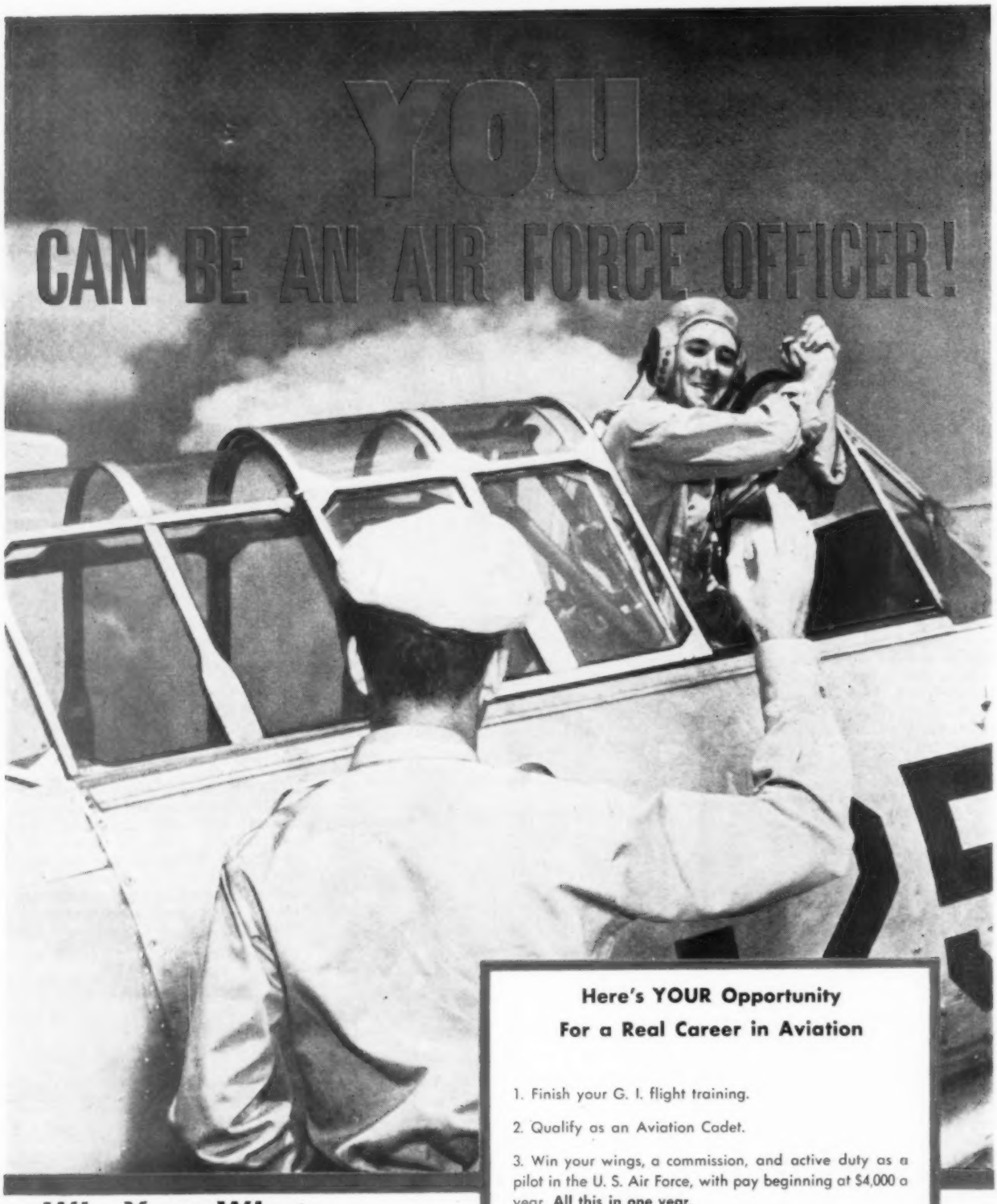

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WINGS OF MERCY

(Continued from page 9)

better demonstrate the utility and practicability of the personal-type airplane.

When the going was toughest, the small airplane got through. Where larger planes could not land, the lightplanes landed to pick up persons in need of hospitalization and surgery. Where trucks and dozers and even snow vehicles could not venture, the lightplanes continued operating and kept supplies and men and medicines moving through to meet emergency needs.

Airplane Aids Train

One civilian pilot, K. C. Peterson, located a Union Pacific streamliner stalled in the snow drifts near Egbert, Wyoming, and parachuted medical supplies within 10 ft. of a flare marker put out by the train crew, who had no other access to essentials for a maternity case aboard the marooned passenger train. Days later while landing on a mercy mission Pilot Peterson hit an unseen wire and broke his airplane's propeller and engine mount, having to spend the night on the spot until repairs were made the next day by a mechanic who flew out with replacement parts.

A U. S. Post Office rural route carrier in one blizzard area hired an airplane to fly him at his own expense over snowbound ranches where he "bombed" the mail, tied in small canvas sacks, to complete deliveries. Other planes landed on snowdrift ridges to pick up children suffering from appendicitis, rushing them to hospitals for operations. Many were flown back to their homes following recuperation. Some of the planes were ski-equipped, some not. But all operated at every opportunity to relieve suffering and maintain communications.

Ranchers and even pilots themselves found the lightplane's ability to serve emergency needs exceeded expectations. In the Goose Lake area near Ewing, Nebraska, 65 families were supplied by only three lightplane pilots during two snow storms in December and January.

Wherever disaster threatened the lightplane air lift spread its sheltering wings above the suffering. Private planes and their owners recognized the need and launched individual missions. Airport operators put trainers and charter ships into the first flights out and difficult obstacles were overcome. When it was over, a grateful countryside had learned first-hand that in time of need the lightplane air lift can deliver the goods, too. ★ ★ ★

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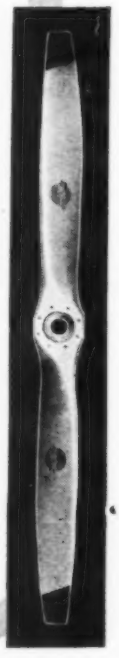
Writes Flying School Operator



"Just completed first test flight, Stinson Voyager equipped with new Met-L-Prop. Take-off and climb performance notably improved, cruising speed increased ten miles per hour. Prop much quieter than old wooden one. All in all, I'd say Met-L-Prop performance is phenomenal."* That's what just one Met-L-Prop user, an operator of a flying school, thinks of Met-L-Prop performance. Add all the other benefits that a forged aluminum Met-L-Prop provides and you'll see why it's the logical choice for every personal plane.

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ALL IN ONE PACKAGE

(Continued from page 15)

as follows: "As a rule, tuning a VHF receiver in rough air requires a very high knob-to-band ratio. However, if that is retained, too much time is required to scan or sweep the dial from one channel to another. In our Avigator, both highly precise tuning by slow knob travel and very rapid dial scanning without knob twisting is possible. The knob has a small button in its center. By depressing this button, the knob can be pushed and pulled, in the manner of a throttle, to scan the dial scale rapidly in search of the loudest omni or responding station when the pilot is not certain of the desired frequency. Upon releasing the button, the knob restores itself at the new position to high ratio and very precise tuning is again available through knob twisting. It is the answer to the pilot's dreams and all who have tried it have acclaimed this feature."

The Avigator's VHF transmitter has plug-in crystals, no soldering being necessary. The crystals are readily accessible on the back of the chassis and can be applied anywhere in the VHF band if necessary. Mitchell's "overtone" transmitter circuits are said to be completely free from any harmonic radiation interfering with other aircraft channels, such as airline company systems use.

Installation problems in the Bonanza, in which the new VHF Avigator fits the radio housing with exactness and utilizes existing plugs and cables, and in other airplanes, have been simplified by the set's compactness. All of it is on the same chassis, including power supply. The set's dimensions are 10 inches by 6 inches by 5 inches. The set requires the addition of a vertical transmitting VHF antenna and a horizontally polarized VHF antenna for receiving. A small V-type antenna is all that is required for broadcast and range reception, there being no requirement for a trailing wire or other large antenna.

Mitchell's automatic-type omni indicator will be a separately-mounted instrument of 3-inch diameter. A plug is located in back of the VHF Avigator to provide the indicator phase frequencies and power. He describes his indicator as "a mechanical stroboscope, which gives the azimuth indication immediately upon tuning into the station." It will be marketed later this year and aircraft owners acquiring it will simply have the indicator mounted in the instrument panel and connected to the radio set. Price of the indicator has not been set.

★ ★ ★

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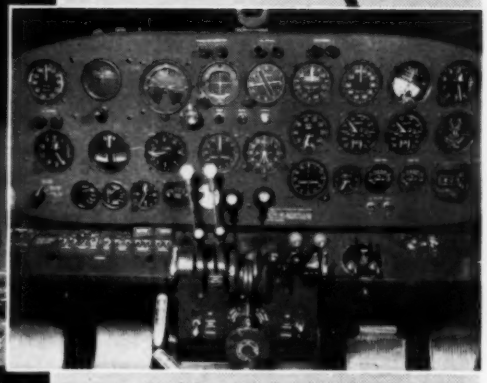
Reed Custom-built, Unitized Radio and Instrument panels installed in a Twin-Engine Beech Executive Transport.



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Outstanding operational features include:

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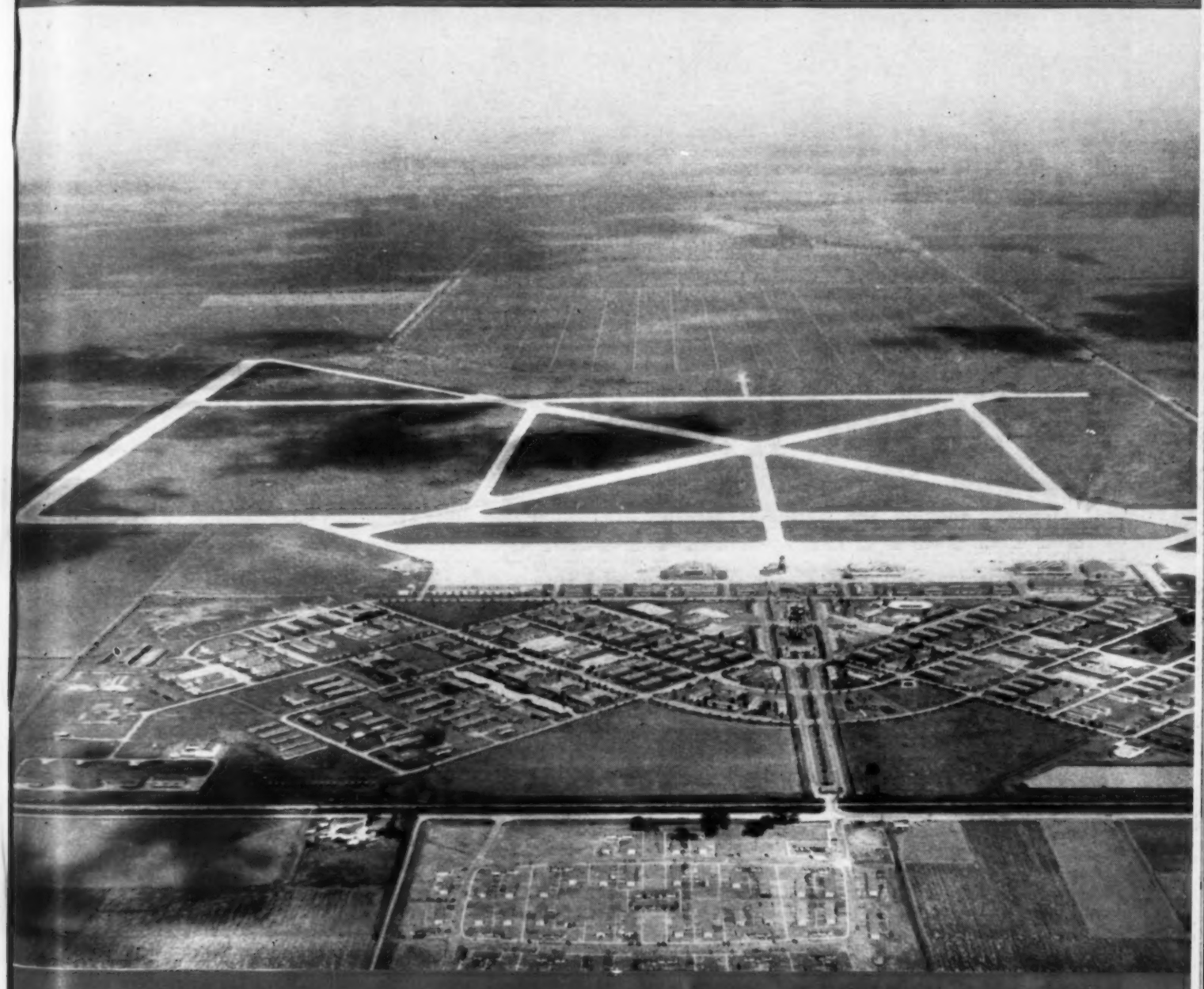
VOL XI, NO. 1 MARCH, 1949

Modern AIRPORTS



THIS MONTH'S MODERN AIRPORT is the Class IV All-Valley Airport at Harlingen, Texas. City operates tower 16 hours daily and station wagon, alerted by tower radio, meets all arriving planes with fresh orange juice and transportation provided by aggressive Merle Huston, airport manager. Three fixed-base operators are allowed to waive a municipal 2-cent-per-gallon gasoline fee so long as the saving goes to the consumer. A good restaurant is adjacent to the hangar line. Trans-Texas, Val-Air Lines and Air News provide the airport with ten or more schedules a day. Harlingen is gaining increasing popularity as a tourist city in the Rio Grande citrus belt. See next page for story outlining airport's utilization.

—(Purnell Photo.)

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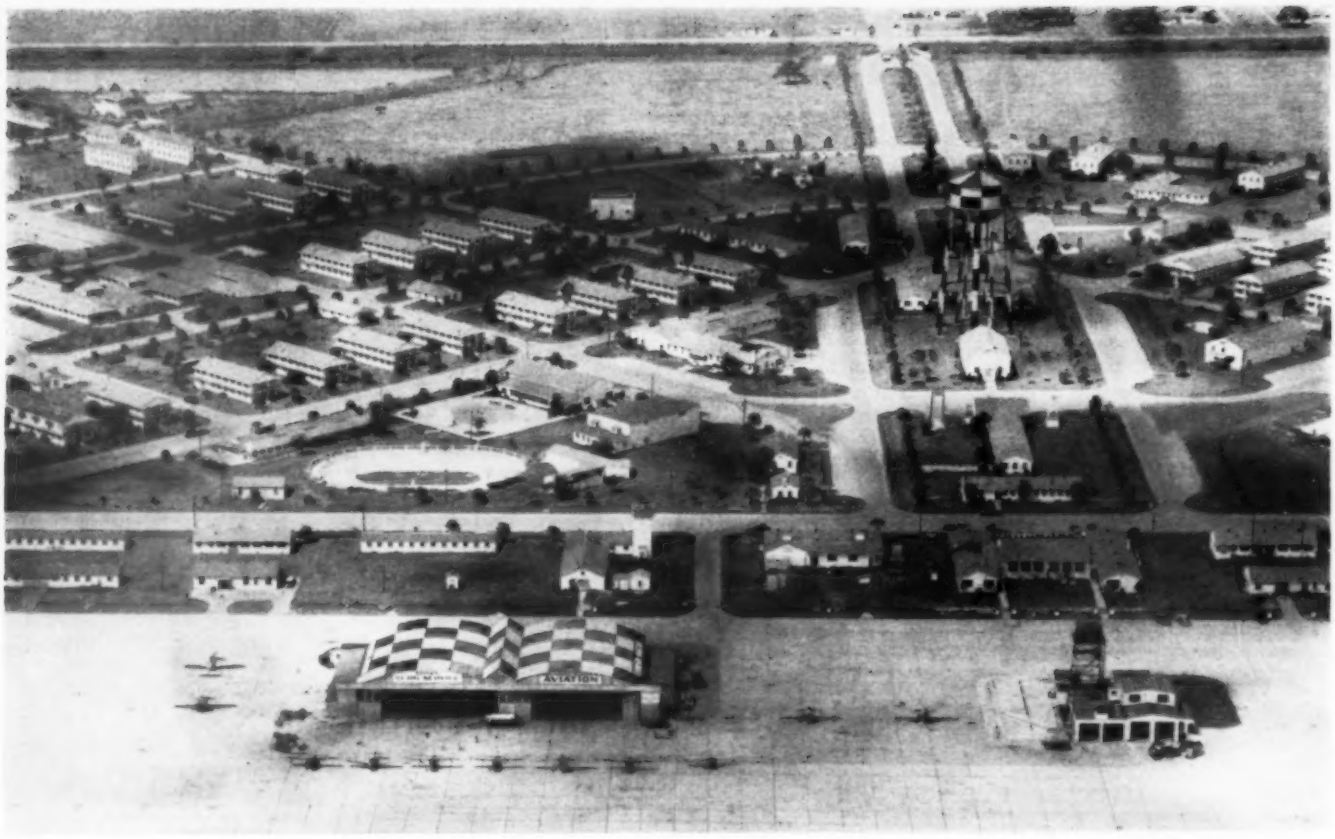

Large building just beyond water tank is central shopping center with numerous stores and shops inside. Swimming pool behind hangar is adjacent to a night club. Small building on ramp to right of hangar is fire station and municipal tower. Temporary passenger terminal behind it will be replaced by larger structure. Hangar shown and others are all rented and busy.

—(Purnell Photo.)

Harlingen Hits the Jackpot

This airport's housing and business facilities are supporting its expanding hangar line activities

INGENUITY and alert management have converted numerous surplus military air bases into thriving airport communities which have not only contributed to local advancement and expansion but stand as proven examples to guide others interested in obtaining maximum utilization of airport properties. One of the nation's outstanding examples of thorough airport utilization is the All-Valley Airport at Harlingen, Texas, in the prosperous Rio Grande Valley. This former Army air base has become a busy community center with its many buildings converted into homes for hundreds of families and shops, stores and operations of a wide variety of business, industry and agriculture. Conditions for such a transformation may be said to have been "ideal" but its success is due more to the ingenuity and courage of the town, population 26,500. Without equal farsighted management and confidence, other cities of greater size and wealth have muffed similar opportunities and what some would call "ideal" surplus air bases have been allowed to deteriorate into ruins.

Civic Leadership

Harlingen's acquisition of the military airport following World War II was simplified by the fact that the Army had established the base on property which had been municipally owned by Harlingen before the war. However, obstacles were encountered when the town sought to acquire all of the buildings and facilities. The War Assets Administration could readily give title to the land and buildings such as hangars which were essential to the operation of the airport as an airport, but it could only transfer non-airport properties such as barracks and non-airport buildings through a sale, which involved more money than the city of Harlingen had available. How this obstacle was overcome represents an interesting example of the extent to which civic-minded people can go in attracting business and industry to the airport.

A non-profit organization was formed by local people to buy the surplus buildings and turn them over to the city, which was without funds required in the purchase. The leader in this was W. P. Briscoe, a retired business man. Mr. Briscoe had been the leader in establishing a city-manager form of government for the city, being persuaded to serve as acting city manager until the town could locate a full-term successor. In this position Mr. Briscoe had visioned the opportunities offered by utilization of the air base and was ready with a practical plan.

After the non-profit organization had obtained the buildings for the city, the air base building area, being in the city limits, was offered to the public. Many buildings were sold. Some were occupied and others dismantled. Other buildings and parcels of the land were rented. Some of the barracks, for example, were sold for apartments but the land on which

they were located was retained by the city, which collects a small ground rental charge. Four hundred and twenty-two of these produce $4,100 annually in ground rentals.

The former base headquarters building, a large structure, was converted into a community shopping center and super market place. Rentals were offered at 5 cts. per sq. ft. monthly. Among the tenants which rented space and which have become successful enterprises are a super market, a dry cleaning shop, a paint store, hardware store, beauty parlor, photographic supply store, dress shop, art school and the like.

Other buildings in less favorable locations were offered at rentals of 3 cents and 2 cents per sq. ft. It wasn't long before a total of 79 tenants had moved into the building area, paying a total of $85,920 in annual rentals. Few of them, individually, have large rentals. Quite a number, for example, pay only $7.50 per month rent. But all together they make up a considerable revenue source. The variety of businesses and activities represented is shown in the following listing of some of the airport's tenants:

Colonial Grocery, Ray's Cleaners, Lyons Art Studio, Weiss Photo Shop, Jones' Paint and Varnish Shop, Blue Plate Foods, Burns Dress Shop, Adams Barber Shop, Val Air Beauty Shop, Texas National Guard (armory), San Antonio Express & Evening News (news bureau), Valley Recreational Society, Chapin Products (marmalade factory), Club Regus (night club), Colonial Theatre, Valley Skateland (roller rink), Wholesale Store Supply (fixtures), B-1 Bottling Co., Valley Shop Towel Supply, Valley Pest Control, Valley Star Dusters (storage), Nehi Bottling Co., Texas Terrazzo Co., Organized Reserves, Leon C. Osborn (canner's equipment), Keen Manufacturing Co. (steel fabrication), Dr. Wells Bottling Co., Naval Reserve, Purnell Photos, Texas Rug Cleaners, Texsun Citrus Co., Firestone Tire & Rubber Co., True Steel Co., Tri-Pak Machinery, Food Machinery Co., B. & H. Tractor Service Shop, Grape Win Bottling Co., Eastern Seed Co., Valley Orange Crush, Dad's Root Beer, Quality Press (printing), U. S. Department of Agriculture, Delta Office Supply, Texas State Highway headquarters, Dillard Earth Movers (shop repair), Valley Egg Co., El Ray Tortilla factory, Conoco Oil Co., Hays C. Mitchell (fruit packing), Fruit Bowl Bottling Co., B. C. Beverage Co., International Milling Co., Brown Container Co. (cardboard box factory), Southwest Chemical Co. (fertilizer), Herbert Widle (upholstering), Home Beverage Service, Van Mac Fisheries (sea food), Cossland Furniture Co., Sears Roebuck Co., and Black Produce.

There are unique success stories behind several of the tenants. The tenant identified as "Chapin Products," for example, represents a woman's experiments to utilize part of an old citrus grove left in weeds by the Army. Uncultivated throughout the war and its fruit unattractive to the market, this grove appeared to offer something besides waste products. A woman, Mrs. Chapin, offered to experiment with an idea of preparing the citrus for market by candying the citrus peel, making marmalade of the juice and pulp and selling both products in attractive gift containers. The city gave free rent for six months and use of the citrus grove. Her idea worked and now she employes several persons, pays the city $75 a month rent and operates a thriving business, shipping citrus sweets all over the country.

Nearly all of the enterprises operating on the old air base are new businesses—the airport did not lure shops from downtown locations but created new opportunities in many cases.

Looking into recreational opportunities, the management found an immediate customer in the Valley Recreational Society for its swimming pool, which is rented at $550 per month with an option of paying 10 per cent of gross receipts per season. A motion picture theatre opened up on a rental of $100 per month for the first six months and $150 monthly thereafter. A night club was opened and pays $150 per month. A roller rink pays a like amount.

An entirely new sports activity was attracted by some novel planning by the management. Two polo fields, one for practice and one for games, were prepared and horse owners were offered the use of stables prepared by converting some of the former military buildings. Last year the airport received $10,000 as its share of the gate receipts from polo games. John Abbott pays $54 per month, based on a rate of 3 cents per square foot, for space where he stores feed for polo ponies.

All of the activities at the airport have created a community with a considerable population, both in residents and in personnel employed there. Thus it requires many services. It has a city water and sewerage system. Utilities are on the property. A fire department and police department are located on the airport. A force of about 25 municipal employes is required for maintenance of city-owned buildings and facilities.

Aviation Activities Expanding

All this has made utilization of the airport into a big business. Unlike some similar air bases in other sections, however, Harlingen has maintained its runways and hangar line for aviation uses and intends to encourage expansion of aviation activities to the fullest extent. Airport Manager Merle Huston is one of the most progressive airport executives in the Southwest and has instituted numerous innovations at the All-Valley Airport.

A Class IV airport, it has a tower maintained by the city (it is not a CAA tower) with two municipal employes operating it 16 hours daily. An airport station wagon, operated by the management, is alerted by tower radio upon the arrival of all airplanes and meets them with the driver instantly offering orange juice from local citrus groves as a complimentary refreshment and welcome to the Valley. The driver then offers to carry airplane occupants and baggage downtown and the airport office makes hotel reservations. There is also city bus service at the airport. On returning to the airplane, the visiting pilot is handed a slip of paper containing weather information along his route.

Another innovation is the airport management's waiving of its 2-cents-per-gallon fee on aircraft gasoline sales, stipulated in leases with three fixed-base operators as a source of revenue in addition to hangar rentals. This 2-cents is being waived so long as the operators pass the savings on to the consumer, the lower price being aimed at attracting more visiting airplanes to Harlingen, which is increasing in popularity as a tourist city. Fixed-base operators on the airport are Blackwell School of Aviation, Ferguson Aviation and Les Mauldin. Airlines serving the airport, with an average of ten daily schedules, are Trans-Texas Airways, a certificated feeder airline operating DC-3's; Val-Air Lines, a non-certificated intrastate airline operating six schedules daily in 4-place single-engine Navion airplanes; and Air News, a contract freight line operating C-47's and Noorduyn Norseman cargo planes carrying San Antonio Express and Evening News editions into the Valley with two or more schedules daily. Another aviation operator is Valley Star Dusters, engaged in crop dusting.

New Terminal Planned

Plans are being readied for a new air passenger terminal at the airport, the former military building now in use being too small and inadequate.

Some of the unused land in the airport is being cultivated by vegetable growers who pay the city a one-quarter share of their annual produce. Last year 670 acres were planted and the revenue to the city averaged about $35 per acre.

Just about everything of any use on the airport is being utilized. But Airport Manager Huston is always scouting for new opportunities and new ways to attract aviation activities. What has been done already is a remarkable demonstration of airport management which many communities might well study, whether surplus military facilities are available or not. In an aggressive community with far-sighted leaders, the right kind of planning and hard work can make the airport a center of business and social activities as well as aviation operations.—T. A. ★ ★ ★

Here's first photo of the new Piper Clipper, which grosses 1,650 lbs. with an empty weight of 850 lbs. Powered by 115-hp. Lycoming, It has 112-mph. cruising speed. Door on right is for front seat while rear seat has its own door on the left. —(Piper Photo.)

4-Pl. Piper Clipper at $2,995

LOWEST-PRICED 4-place personal plane ever marketed, W. T. Piper's new "Clipper," priced at $2,995, features his firm's 1949 line of ten airplanes ranging from the 2-place Vagabond to the Piper Stinson. Because of its low price, Piper is so enthusiastic over its prospects that he calls it "an important milestone toward the eventual elimination from the market of most 2-place aircraft except those used for training, agricultural or certain industrial purposes." That's covering a lot of ground in enthusiasm.

The new Clipper, powered by a 115-hp. Lycoming engine, is remarkable for the useful load—800 lbs.—it carries. With an empty weight of 850 lbs., its useful load is 94%

(Continued on page 32)

Coming in April

Southern Flight's 15th Anniversary Issue!

An authoritative all-industry review covering fifteen years of aviation progress.

Due to the completeness of this documentary edition, covering fifteen of aviation's most dynamic years, thousands of important people will keep our April issue as a constant reference.

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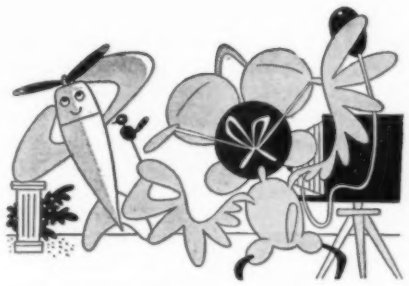
The Birdmen's Perch

By *Major Al Williams*, ALIAS, "TATTERED WING TIPS,"
Gulf Aviation Products Manager, Gulf Bldg., Pittsburgh 30, Pa.



Hurry, hurry, hurry!

Hurry and write in for your free pictures of the Gulfhawks before it's too late.

One of these great Gulfhawks is already in the Smithsonian Institution . . . the other one takes off from a standing start in less than 2½ seconds, which makes them both unique—so hurry, hurry, hurry!

You can hang these lovely pictures of these lovely planes in your den or over the fireplace . . . you can keep 'em in an album . . . you can show them at the hangar.

But you can't do any of these things until you *get* these pictures. And you can't get them until you write and ask for them! So hurry, hurry, hurry!

Send a post card, a letter, a smoke signal, or a barefoot messenger to the address above, and we'll send the pictures to you with unseemly haste.

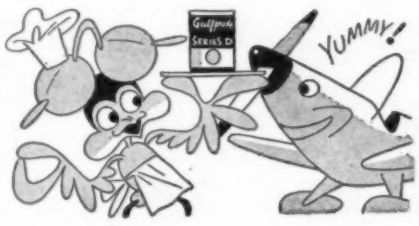
They're free! They're autographed! They're terrific! So hurry, hurry, hurry!

SHORT STORY

This super-lubricant, Gulfpride-Aviation Series D, was tested in the labs and on the fields for 6 years before we were satisfied that it would do everything that a lubricant should do for horizontal engines.

In addition to Alchlor Processing (which removes more of the nonlubricating components from the oil), Gulfpride-Aviation Series D contains detergents which remove foreign matter from engine innards, keep such matter separated and in suspension until it's flushed out at an oil change! This great oil also contains oxidation inhibitors and antifoam agents.

In your engine, that means that you can expect longer periods between overhauls than ever before . . . it means fewer top overhauls and fewer replacement parts



. . . it means that you can practically forget stuck rings or valves!

But don't forget to insist on Gulfpride-Aviation Series D.

LITTLE KNOWN FACTS DEPT.

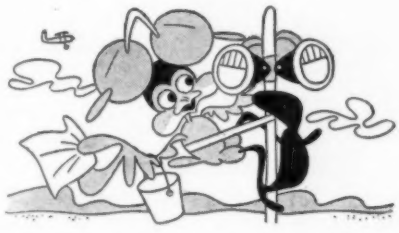
We got a newcomer Perch Pilot who arrived in style!

She (Yep! A genuine female woman of the opposite sex!) sent in a fistful of Little Known Facts About Well Known Planes, *and sent proof with every single one!* Ruth Freckleton was trying for the Senior commission that we give to anyone who sends us 5 Facts that we use.

But we can only use 3 of her Little Known Facts. Of course, she still gets a commission as Perch Pilot (bottom rung) . . . and maybe she'll come up with a couple more items, later on. Like these:

"The first U.S. Airways beacons were sets of four automobile headlights mounted on poles!"

"A supersonic plane's cockpit is cooled



by the equivalent of 20 family-size refrigerators!"

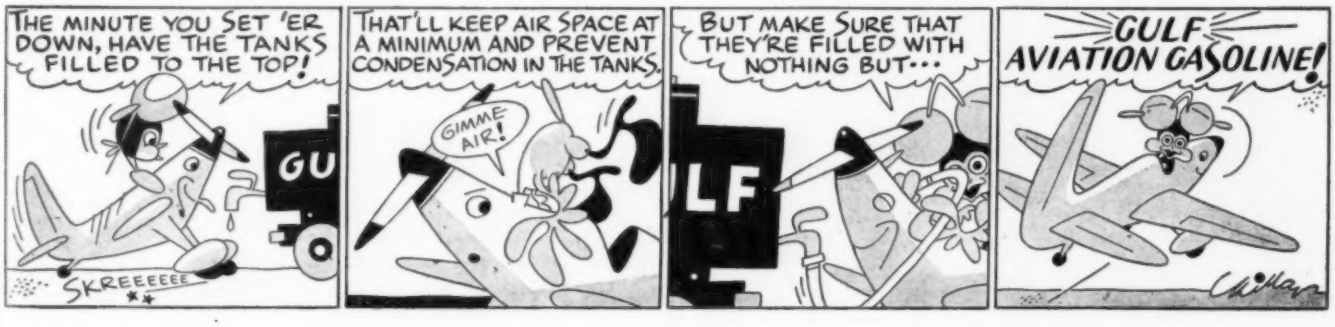
"61% of all non-airline civilian flying in '47 was done in 2-place, 65 hp-or-less planes!"

Thankee, Ruth. How about getting some of your students to send us some Facts? Tell 'em a post card'll do.

Just mail them to the address above.

Gulf Oil Corporation and Gulf Refining Company... makers of

GULF **GULF AVIATION PRODUCTS**


THE MINUTE YOU SET 'ER DOWN, HAVE THE TANKS FILLED TO THE TOP!
GU
SKREEEEEE
THAT'LL KEEP AIR SPACE AT A MINIMUM AND PREVENT CONDENSATION IN THE TANKS.
GIMME AIR!
BUT MAKE SURE THAT THEY'RE FILLED WITH NOTHING BUT···
LF
GULF AVIATION GASOLINE!

Questions and Answers For Airport Operators

Non-Aviation Revenues

QUESTION: Where can I obtain actual case histories and examples of airport revenues from such sources as concessions and non-aviation activities?

ANSWER: Many such examples have been published in these columns and elsewhere. But a handy booklet, "How To Make Money On An Airport," has just been published by the Tennessee Bureau of Aeronautics, Nashville, Tenn., and we believe a copy will be sent to airport managers requesting it.

The new booklet cites examples of successful non-aviation revenue sources on small and large airports located at Alexandria, La.; San Francisco, Calif.; New York; Columbus, Ind.; Union City, Tenn.; Phoenix, Ariz.; Minneapolis; Sebring, Fla.; Liberal, Kansas; Savannah, Ga.; Santa Barbara, Calif.; Santa Maria, Calif.; Cedar Rapids, Iowa, and Vero Beach, Fla. Proven sources include stores, garages, hotels, picnic grounds, swimming pools, nurseries, vending machines, parking lots, restaurants, theatres, observation platforms and others.

Some of the booklet's examples are as follows:

ALEXANDRIA, LOUISIANA: Three hay crops annually, cut and baled by a local firm which pays the city 40 per cent of proceeds, indicate and average annual yield to city of $21,000; rentals producing a total of $10,000 annually from two trade schools, a state school for spastic children, a Soil Conservation Commission, maintenance garage and a butane tank manufacturing company. . . . COLUMBUS, INDIANA: An 805-acre surplus military auxiliary field, acquired by city, last year produced a tomato crop which netted over $4,000 and a soybean crop which produced $8,500. ... FRANKLIN, TENNESSEE: Willow Plunge Airpark, built around a swimming pool which cleared $25,000 last year, has added a golf driving range, miniature golf course and picnic grounds.

CEDAR RAPIDS, IOWA: Municipal airport's proven non-aviation resources include a snack bar, model airplane area, picnic area, parking lot, coin machines and auto service station. Plans call for developing "Main Street" 900 ft. long leading to Ad Building. Space or "lots" along this thoroughfare will be leased to concessionaires including a hotel, garage, bowling alley, newsreel theatre, super market, drug store, aircraft sales store (apart from hangar) and shops and offices, with concessionaires erecting their own building.

CALIFORNIA: Santa Maria gets $100 monthly rentals from a grocery store. Santa Barbara airport revenues include 10 per cent of gross receipts from a motorcycle race track and fees from the storage and repair of sail boats as well as from a golf driving range. . . . FLORIDA: Ten business firms formed "Air Terminal Business Associates" engaged in activities ranging from fattening cattle to auto repairs and printing, with 27 former barracks buildings converted into living quarters, all of which produce revenues for Hendricks Field at Sebring. . . . KANSAS: A net profit of $26,000 was made in a year by the town of Liberal which leased part of its former military airport to grain

AIRPORT OPPORTUNITIES

(Note: These listings are published without charge as a SOUTHERN FLIGHT service to aviation in an effort to keep airports open and operating. If you desire a listing, send it to the Editors.)

Operator Wanted

COMPLETE AIRPORT. Operator needed for DeRidder Airport serving town of 7,500 population near Texas line. Former Army installation, it has four 4,500-ft. by 150-ft. paved runways, Army hangar measuring 120 ft. square and complete complement of warehouses, shops, barracks and other buildings. Write Lee Nichols, Secretary, Beauregard Parish Police Jury, DeRidder, Louisiana.

Paved Runways, Hangar

OPERATOR WANTED. Contact E. P. Griffin, president, DeSoto Parish Police Jury, Mansfield, Louisiana, population 5,000, who is looking for an operator for Mansfield Airport, which has three paved runways measuring 5,000 ft. by 150 ft. and a 60-ft. square hangar.

Operator Wants Texas Airport

AVAILABLE TO TEXAS MUNICIPALITIES: Operator who has opportunity to sell his airport as a farm is interested in moving to Texas either as an operator or as manager of a municipal airport. I have the background to operate successfully, having developed my own airport with 20 yrs. experience in my own business. Am a Private Examiner holding License No. C6959. Interested parties please contact DEAN WAKEFIELD, Wake Field, Rural Route 1, Huntington, Indiana, Phone 1364.

Florida Airport for Lease

AVAILABLE NOW—Twenty-year lease on 100 x 100-ft. shop, plus office building and large concrete apron on which T hangars may be built. Low land rental plus 2c per gallon on all fuels sold or used. Paved runways 3,000-ft. long with some public improvements planned. Excellent for spraying or dusting base. Close to rich farmland in Florida Everglades. Airglades State Airport, Clewiston, Florida. For details, write to Florida State Improvement Commission, P. O. Box 149, Tallahassee, Florida.

Flight Parties . . . **This year plan to get more usefulness from your airplane in business and social activities. You can do both at the friendly Flying L Ranch. Wherever you are, the Flying L is only hours away in your plane, awaiting your arrival with superb facilities and service. Everything as you want it . . . hard-surfaced runways . . . service to earn your satisfaction and confidence . . . distinctive, cozy-comfort guest suites just across the turf . . . swimming pool . . . horseback riding . . . fishing in stocked lakes . . . hunting . . . appetizing food around the clock . . . night-time fun-fare.**

¶ Make your flight plans now — next trip visit the Flying L Ranch, 32 miles West of San Antonio at Bandera.

Col. and Mrs. Jack Lapham, Owners

and truck body storage firms, a plastic sales concern, an interior decorator, a golf course, a baseball field and housing for fairs.

The Tennessee Bureau of Aeronautics booklet should be a valuable reference for airport managers.

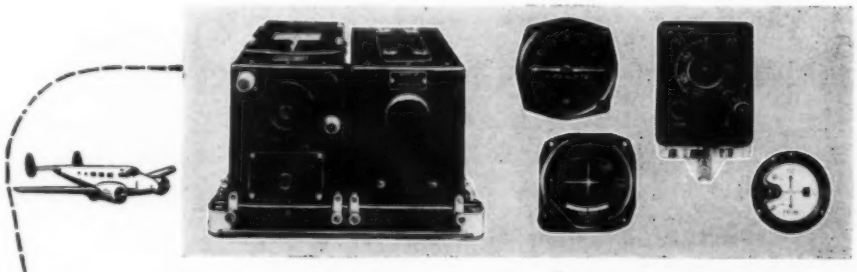
No Short-Cut to Safety

QUESTION: Have the airlines installed cross-wind landing gear? We noticed a newspaper report from Washington quoting the CAA Administrator to the effect that single-runway airports will suffice for air transports equipped with cross-wind landing gear, there being no need now for cities to build multi-directional runway systems, even for all-weather service.

ANSWER: We don't believe the article intended to say that. And we feel certain the CAA Administrator did not intend to say that all-weather service can be accommodated at any community having a single runway.

If an airline has installed cross-wind swivel gear we have not received any release about it. Our understanding is that the cross-wind gear has been tried experimentally by CAA on a C-47 transport, a twin Beech (surplus military model), and small single-engine airplanes. However, these are not retractable as yet, according to our information. For example Blanche Noyes of CAA last month made a field trip in a Bellanca with cross-wind gear. The wheels could not be retracted and her cross-country ground speed was cut down to about 100 mph., whereas the Bellanca with retracted gear cruises at more than 130 mph. We think there is a definite need for cross-wind gear on some airplanes for certain types of flying but until it can be retracted we do not believe high-performance aircraft will use it.

As for all-weather flying, cross-wind gear can only be considered as an aid to ILS or GCA systems. There must be adequate runway and approach provisions for all-weather flying before CAA will approve airports for such traffic. Since safety under all conditions is the primary consideration, we do not believe anything but the widest margin of safety should ever be approved for all-weather flying. Half measures, doubtful devices and luck have no place in instrument flying, which should either be foolproof or not attempted. Cities which can provide sufficient passenger, express and mail traffic to justify all-weather operations should seek the most complete and best-equipped runway systems available if they expect to benefit from all-weather flying, which is becoming more and more practical as radio and electronic devices are perfected to aid pilot skill in overcoming a multitude of obstacles. ★ ★ ★



The Magic of VHF

Airborne Equipment for;
OMNI-DIRECTIONAL RANGES
RUNWAY LOCALIZERS
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SIMULTANEOUS VOICE
GCA VOICE RECEPTION

The Type 15A VHF Navigational Receiving Equipment (illustrated) provides for reception on the new Omni-Directional Ranges as well as operation on both types of VHF Runway Localizers, and the VHF Visual-Aural Airways Ranges. Simultaneous voice feature is included on these ranges. The *tunable* A.R.C. Receiver permits selection of any VHF aircraft frequency.

The A.R.C. Type 17 or A.R.C. Type 18 is the companion communication equipment normally associated with the Type 15A. The Type 17 VHF Communication Equipment adds independent two-way VHF communication facilities. The Type 18 adds VHF Transmitting Equipment only. All Type 17 and 18 units are type-certificated by the CAA.

The dependability and performance of these VHF Communication and Navigation Systems spells increased safety in flight. Specify A.R.C. for your next installation.

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DEPENDABLE ELECTRONIC EQUIPMENT SINCE 1928

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service organization
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Wherever you fly in North America — or in the free world, for that matter — you'll find Continental parts and service as near as your nearest airport. The Continental service network is constantly being expanded to keep pace with the increased use of personal, family, and executive planes.

"OLD FAITHFUL"

Thinking of buying that first plane? Though you won't go wrong on any plane that's Continental powered, beginners generally like the "feel" of one with an A65. "Old Faithful" holds world records for reliability, power, economy, and low maintenance cost. Select the Continental powered plane that fits your budget and your needs, and ***start flying now!***

START FLYING NOW

For pleasure — or for profit — you'll find safe, fast, economical transportation in one of the many Continental-powered planes now in production. It's simple, easy, and inexpensive to *start flying now*. The Continental Red Seal engine dealer at your nearest airport will be glad to give you full information — no obligation of course.

Continental Motors Corporation
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PIPER CLIPPER

(Continued from page 28)

of its empty weight, a seldom-achieved ratio. Its gross of 1,650 lbs. compares with the higher-priced Piper Family Cruiser's 1,850-lb. gross, the difference being largely in the Clipper's smaller dimensions. It is short-spanned, measuring 29 ft. 3 ins. from tip to tip. But even with a 1,650-lb. gross load, its wing loading is only 11.2 lbs. per sq. ft. as compared with the Stinson's 15.5-lb. loading.

Performance claims at gross load and sea level include a 112-mph. cruising speed, a 50-mph. stalling speed and a 600-fpm. rate of climb. With only two aboard, it is said to climb at 1,200 fpm. Fuel capacity is 30 gals. (480 miles at cruising) and baggage capacity is 50 lbs. The fuel is carried in a 12-gal. fuselage tank and an 18-gal. wing tank.

Cross-Over Exhaust

Innovations include the incorporation of two doors, the one on the right being to enter or leave the front seats and the one on the left being to enter or leave the rear seats. Front seat width is 29 ins., rear seat width is 37 ins.

A new cross-over exhaust system developed by Piper and Lycoming engineers is said to add about 7 hp. at static rpm. through more effective scavenging of exhaust gasses. Safe Flight stall warning indicators are standard equipment on all Clippers.

Other 1949 model Piper's range from the $1,995 2-place, 65-hp. Vagabond through the $6,484 Stinson Station Wagon and include four 2-place tandem models, two 2-place side-by-side models and four 4-place models, three of which are the Clipper and two Stinson models. The fourth 4-place model is the $3,995 115-hp. Family Cruiser. Tandem models are the 65-hp. and 90-hp. PA-11 utility and training ships. Side-by-side models are the PA-15 Vagabond with 65-hp. Lycoming and the PA-17 with Continental 65. Improvements in all models, featuring a new seating arrangement in the Family Cruiser, have been cited.

★ ★ ★

SERVICE GUIDE FOR FLIERS —

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For QUICK, COURTEOUS service stop at
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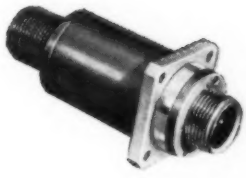
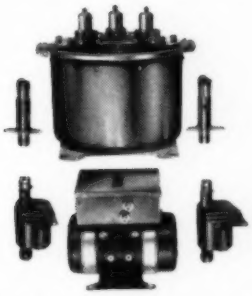
Ahead with the latest ignition developments

FOR 25 YEARS!

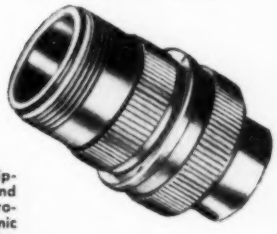


Bendix-Scintilla* Radio Interference Filters are designed for insertion in aircraft ignition grounding circuits. Extremely successful in eliminating radio noise at very high frequencies.



Bendix-Scintilla* Ignition Equipment is made in low tension and high tension types for reciprocating engines, and electronic systems for jet and turbine engines.

Bendix-Scintilla* Electrical Connectors are built in a wide variety of sizes and types — precision-designed to give a pressure-tight, water-tight and radio-quiet assembly.



More progress in military aviation has been achieved in this country than in any other on earth. Suppliers of functional components for military aircraft either develop with the changing picture or fail. The Scintilla Magneto Division, as foremost producer of ignition equipment for military, commercial and personal aircraft, attributes much of its own growth and achievement to the basic incentive of keeping America first in the air.

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Southwest Airmotive Company wishes Pioneer continued success in its vital community-type air service in the Southwest.

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